
ROOFCURB INSTALLATION DETAILS

**For compliance with building code seismic
and wind load requirements.**

March 2007

Paul Selman, PE
Thybar Corporation
VISCMA Member

Introduction

The process by which roof curb attachments are designed can be summarized in three steps. A licensed Professional Engineer (P.E.) can then certify that the roof curb attachments meet the requirements of the applicable building code.

1) Determine the governing building code for the particular project.

This information is typically provided in the Mechanical or Structural sections of the project specifications. The P.E. should also be made aware of any project requirements that are more stringent than those listed in the building code.

2) Determine the seismic/wind load design force that the rooftop equipment and roof curb is required to withstand.

The building codes commonly adopted in the US provide step-by-step procedures for determining the design force that a rooftop assembly will be required to withstand. This design force may be a result of seismic activity or wind load, depending on the project location. In areas of the US where it is not intuitively clear which load is greater, the P.E. should perform both calculations and specify the roof curb attachments accordingly.

3) Determine the requirement for attachment of roof curb to building roof.

Once the design load on the rooftop equipment is calculated, the P.E. can determine a method of attaching the roof curb that is sufficient to keep the equipment in place. The attachment must resist the tension, shear, moment and uplift forces generated by the design force acting on the rooftop equipment. The roof curb must be designed, manufactured and installed with the ability to safely transfer these forces into the building structure.

The P.E. must ensure that the project Mechanical and/or Structural engineer is aware of the loads that will be imposed on the building structure by the rooftop equipment.

Detailed Drawings

The following 6 drawings have been reviewed by the Vibration Isolation and Seismic Control Manufacturers Association (VISCMA). These drawings can be used as typical roof curb installation details for insulated or uninsulated curbs installed on structural steel or a concrete pad. Note that bolt size, anchor embedment depth and weld length will be determined by applicable building codes and forces generated by wind and/or seismic forces.

SEISMIC/WINDLOAD UNINSULATED CURB INSTALLATION INSTRUCTIONS

The curbs should be anchored to structural steel as follows:

- * The width of the supporting structural steel shall be at least as wide as the base plate of the curb.
- * Bolts should:
 - be CODE APPROVED, with nuts and washers.
 - be placed in every hole provided in the base plate of the curb
 - pass through the base plate of the curb and the structural steel
 - be tightened according to manufacturer's torque specifications. (Figure 1-1)
- * Alternatively, the curb may be welded to the structural steel. (Figure 1-2)

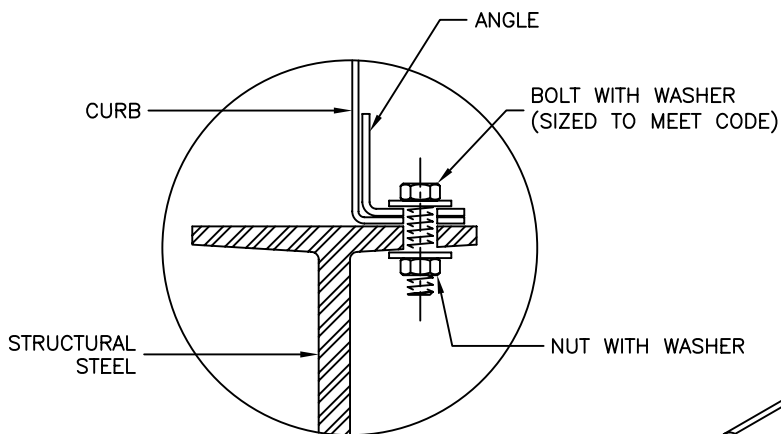


Figure 1-1

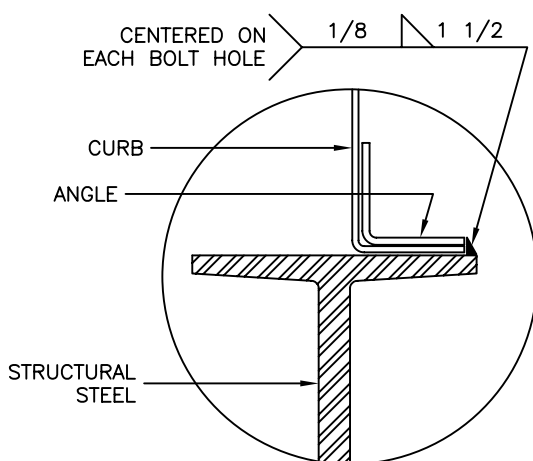
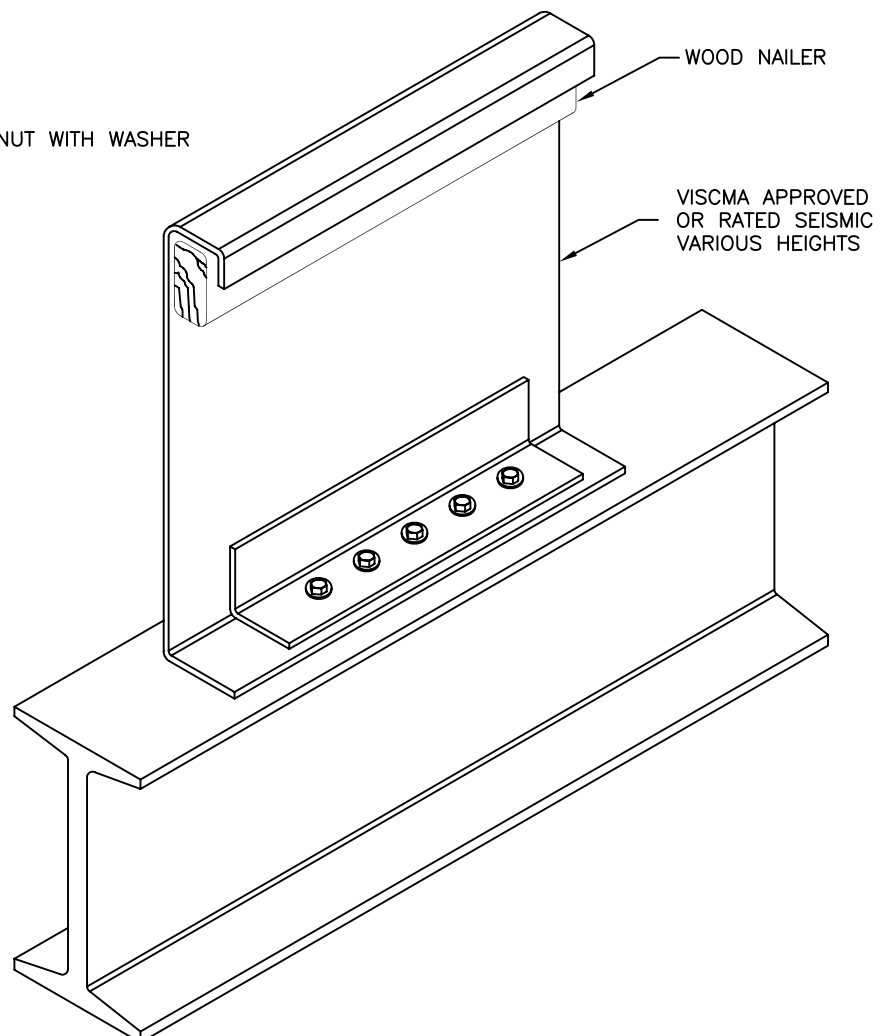


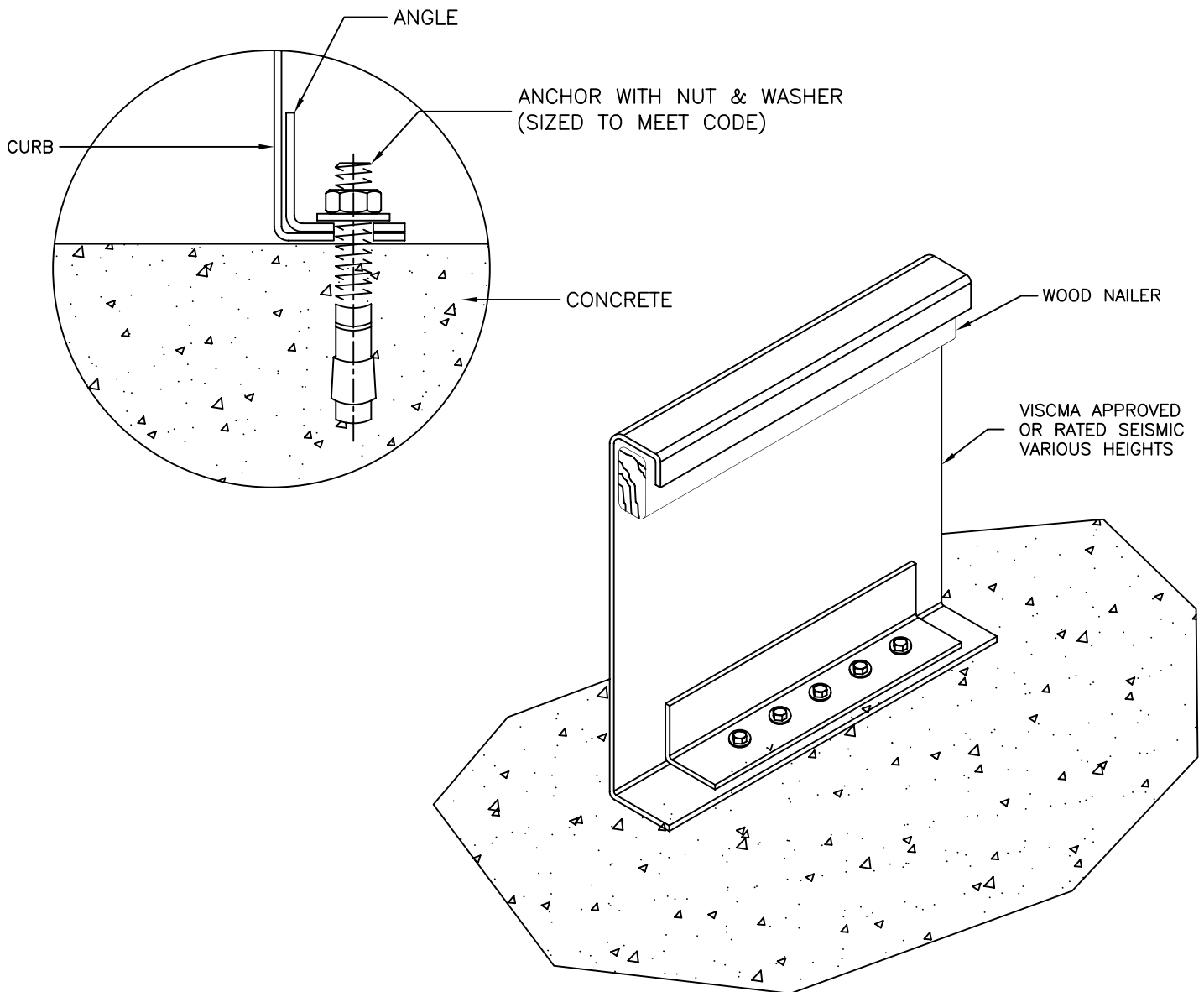
Figure 1-2



SEISMIC/WINDLOAD UNINSULATED CURB INSTALLATION INSTRUCTIONS

The curbs should be anchored to concrete as follows:

- * Anchors should be CODE APPROVED with nut & washer.
- * Anchors should be placed in every hole provided in the base plate of the curb.
- * Anchors should pass through the base plate & be embedded into the concrete.
- * Follow anchor manufacturers instructions for drilling holes & installation into concrete.



SEISMIC/WINDLOAD INSULATED CURB INSTALLATION INSTRUCTIONS

The curbs should be anchored to structural steel as follows:

- * The width of the supporting structural steel shall be at least as wide as the base plate of the curb.
- * Bolts should:
 - be CODE APPROVED, with nuts and washers.
 - be placed in every hole provided in the base plate of the curb
 - pass through the base plate of the curb and the structural steel
 - be tightened according to manufacturer's torque specifications. (Figure 1-1)
- * Alternatively, the curb may be welded to the structural steel. (Figure 1-2)

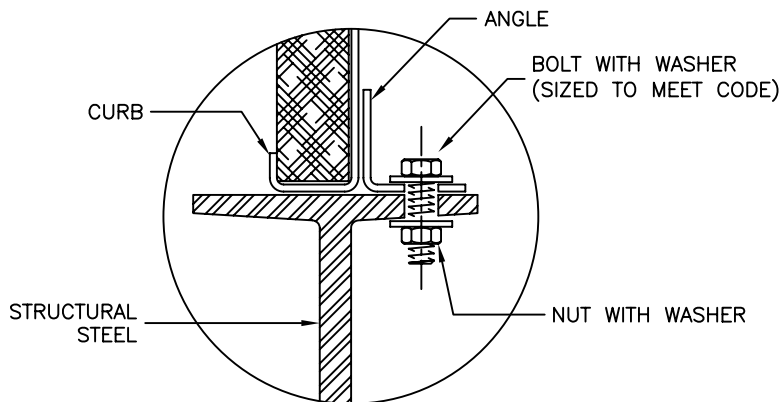


Figure 1-1

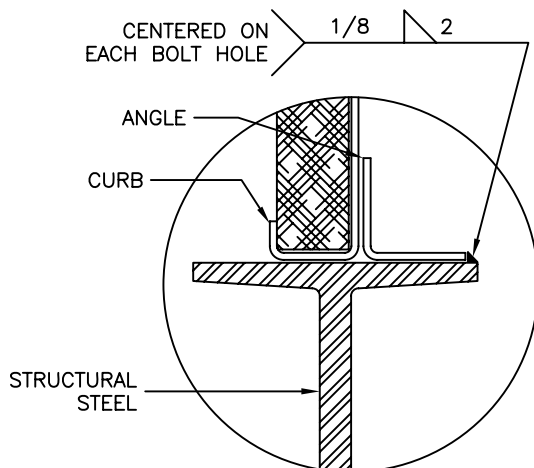
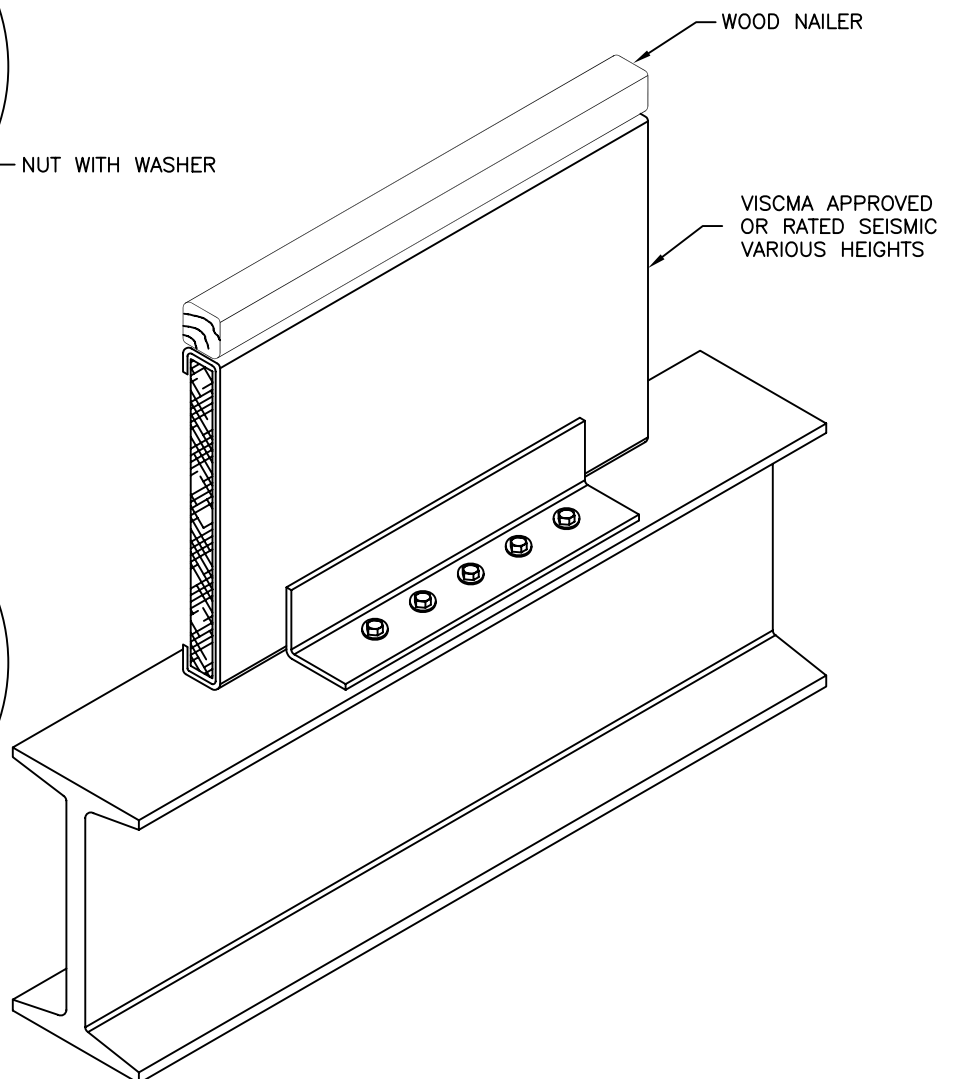


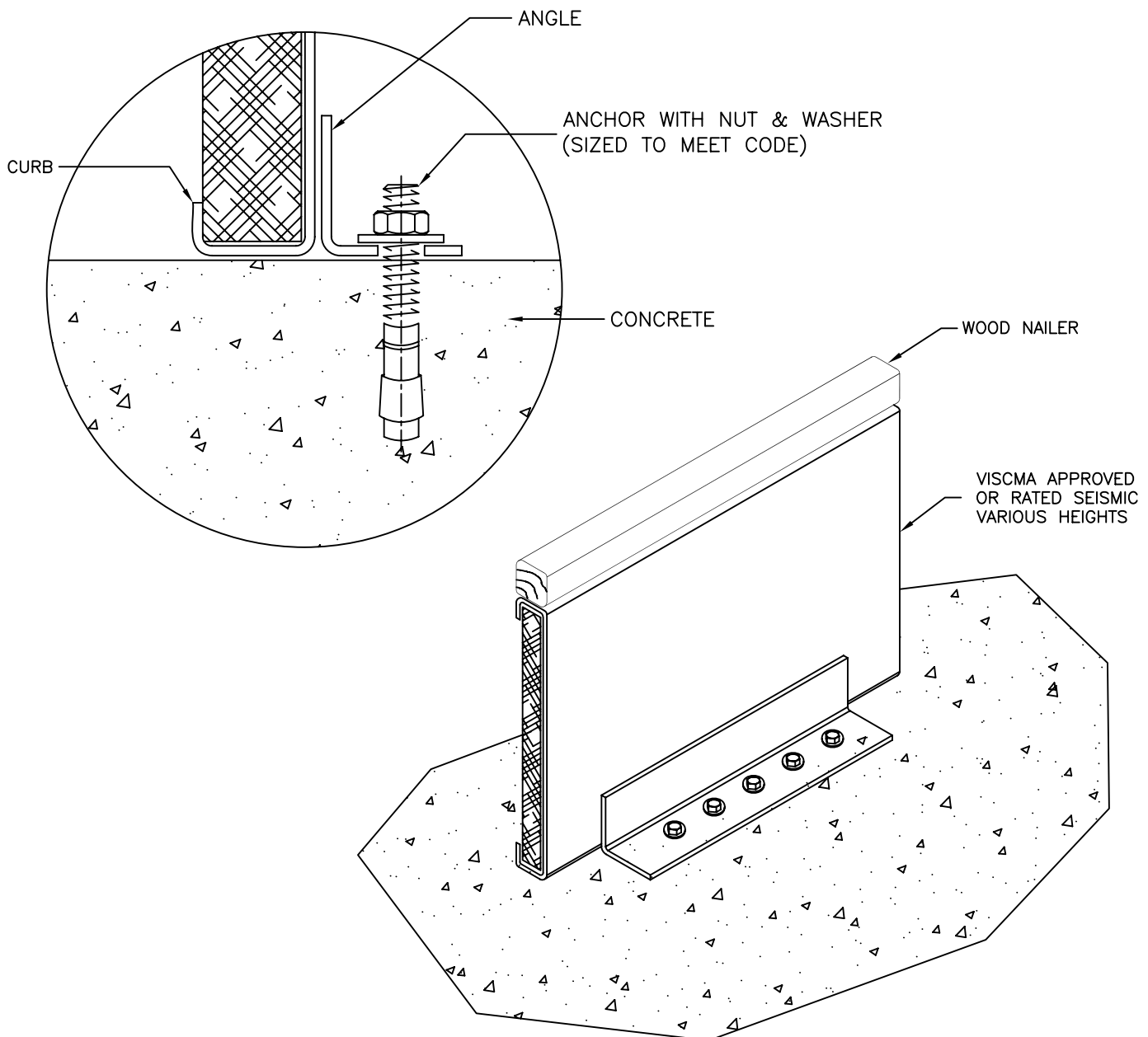
Figure 1-2



SEISMIC/WINDLOAD INSULATED CURB INSTALLATION INSTRUCTIONS

The curbs should be anchored to concrete as follows:

- * Anchors should be CODE APPROVED with nut & washer.
- * Anchors should be placed in every hole provided in the base plate of the curb.
- * Anchors should pass through the base plate & be embedded into the concrete.
- * Follow anchor manufacturers instructions for drilling holes & installation into concrete.



SEISMIC/WINDLOAD VIBRO-CURB INSTALLATION INSTRUCTIONS

The curbs should be anchored to structural steel as follows:

- * The width of the supporting structural steel shall be at least as wide as the base plate of the curb.
- * Bolts should:
 - be CODE APPROVED, with nuts and washers.
 - be placed in every hole provided in the base plate of the curb
 - pass through the base plate of the curb and the structural steel
 - be tightened according to manufacturer's torque specifications. (Figure 1-1)
- * Alternatively, the curb may be welded to the structural steel. (Figure 1-2)

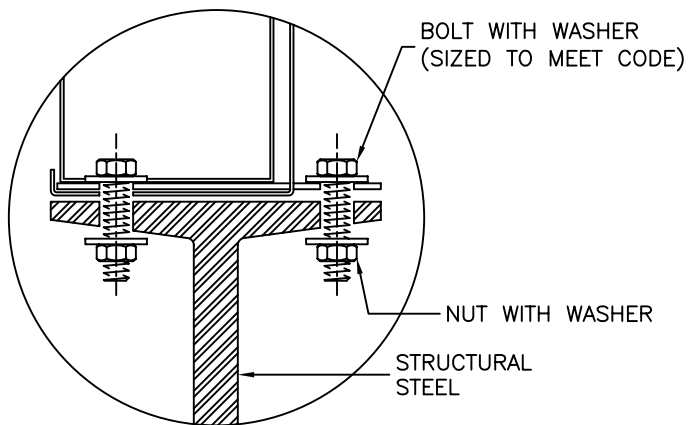


Figure 1-1

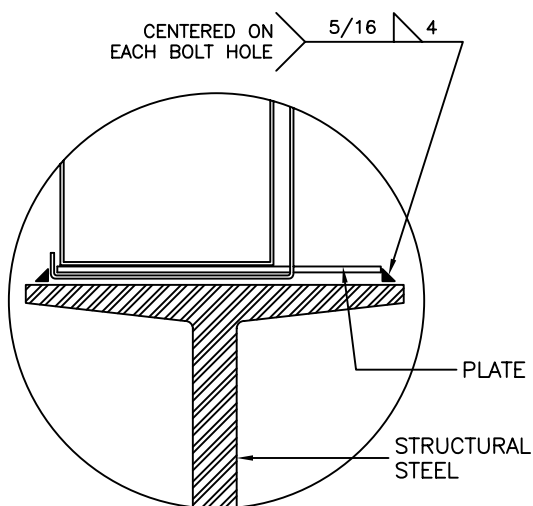
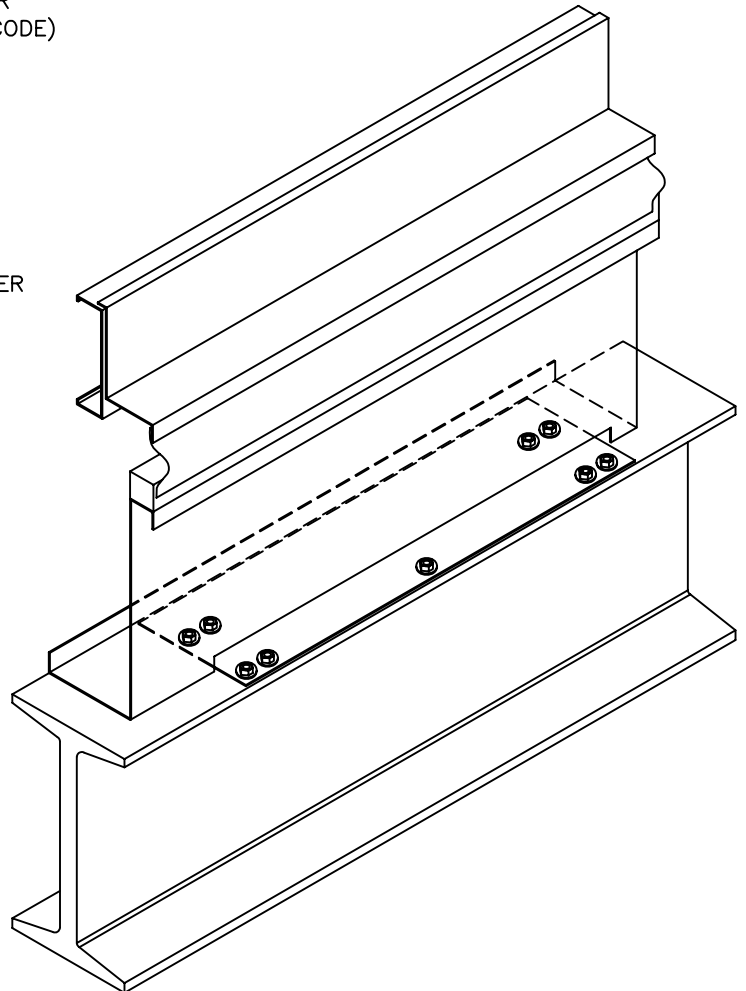


Figure 1-2



SEISMIC/WINDLOAD VIBRO-CURB INSTALLATION INSTRUCTIONS

The curbs should be anchored to concrete as follows:

- * Anchors should be CODE APPROVED with nut & washer.
- * Anchors should be placed in every hole provided in the base plate of the curb.
- * Anchors should pass through the base plate & be embedded into the concrete.
- * Follow anchor manufacturers instructions for drilling holes & installation into concrete.

